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A
L E T T E R
TO A
S U R G E O N
O N
I N O C U L A T I O N.

CONTAINING

REMARKS on Dr. DIMSDALE'S
PAMPHLET upon that Subject;

The IMPROVEMENTS that have been made in
this important Branch of the MEDICINAL
ART, since the Publication of that Pamphlet;

The AUTHOR'S SUCCESSFUL METHOD
of PRACTICE,

Particularly with INFANTS and YOUNG CHILDREN;

AND

The METHOD of Preparing and Administering a
Powerful and Efficacious REMEDY to be given in
the ERUPTIVE FEVER, the Use of which will
render the PRACTICE of INOCULATION still more
GENERAL and more SECURE.

To which are added,

SOME SINGULAR CASES.

By JOHN BLAKE, *K*
Surgeon, at Bristol.

Experientia ratiocinationi præstat.

L O N D O N :

Printed for W. OWEN, No. 11, in Fleet-Street,

M.DCC.LXXI.

[Price One Shilling and Sixpence.]

LETTER
TO A
SURGEON
ON
INOCULATION.



REMARKS
ON
THE
AUTHOR'S
METHOD
OF
INOCULATION.

THE
METHOD
OF
INOCULATION
IS
A
NEW
AND
EFFECTUAL
MANNER
OF
PREVENTING
THE
DANGERS
OF
THE
DISEASE
OF
SMALL-POX.

LONDON:
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1774.
[Price One Shilling and Sixpence.]

[1]

A

LETTER

TO A

SURGEON, &c.

SIR,

THE design of this letter is to give you (in the words of your request) "an insight into that method of inoculating for the small-pox, to the extraordinary success of which you were for some time an eye-witness; and to enable you to practice this important art with all its improvements, and in its utmost extent, in that part of the country which you have chosen for your residence."

R

Within

Within these few years, inoculation has given rise to a number of publications, the majority of which chiefly consist, either of attempts to discover the pretended specifics of one particular practitioner, or theoretical disquisitions on the merits and demerits of the practice in general. Of those which properly come under the denomination of practical treatises, that which I have made the *basis* of my practice, and which I must desire you first to peruse, was written by the ingenious Dr. DIMSDALE, of Hertford. To him, mankind in general, and the faculty of physic in particular, stand greatly indebted, for his generous publication of a method of practice, which he knew from his own experience was attended “with a success at least equal to any then discovered,” and which at that time was ingrossed by a few individuals, by whom the world seemed not to expect it to be made public; such a publication being destructive of their scheme for *monopoly*, their boasted pretensions to *wonder-working nostrums*, and *specific infallible remedies* *.

Specious

* To such an excess of refinement has the doctrine of *NOSTRUMS* been carried by these gentlemen, that I remember

Specious pretences of this kind, may for a time impose upon weak understandings, and elude the superficial enquiries of the unwary and unlearned; but the intelligent part of mankind do not so easily swallow the bait. Cautious of subjecting their fellow-creatures to the ravages and fraudulent impositions of pretenders to nostrums, it is the duty of those of the profession of physic, to make as strict an enquiry and examination as may be, concerning the nature and effects of such pretended nostrums, before they either recommend them, or become in any degree accessory to their use. It was by means of such enquiry and examination, that the present successful method of inoculating for the small-pox, was discovered and made public. The particular effect which the preparatory medicines produced on the salivary glands of many, and the manner of administering these medicines to all, pretty plainly evinced, without any chymical process,

B 2

remember to have heard one of them in the West of England, harangue with great gravity, not only upon the miraculous powers of procuring any given number of pustules, and lessening the quantity of eruptions at pleasure, but likewise upon the still more marvellous art, of determining the number of eruptions the patient chuses to have, to whatever part of the body he pleases,

cess, the name and nature of the principal article of the composition. The nature of the *medicinal* preparation being discovered, the other parts of the process were still more obvious.

But, though an enemy to empirical arts, and the extravagant impositions of designing and rapacious men; I readily agree with Dr. DIMSDALE, in condemning any ungenerous attempts that may be made, to deprive those of their due share of private emolument, who may justly lay claim to the merit of improving so important a discovery.

It must give great satisfaction to every generous and humane mind, that this salutary art is brought so near to perfection. Persons of all ages, from a few weeks, to seventy years and upwards; persons afflicted with diverse chronical and hereditary disorders, of various temperaments, habits and constitutions, pass through the disease with safety, and by far the majority of them, with little sickness and no confinement. So great is the success attending the present practice of inoculation in judicious hands, that

that few decline being inoculated from any apprehension of loss of life. But some we meet with even now, who object to it from a *religious* motive, and think it the greatest presumption to take their lives (as they term it) "out of the hand of God, to place them in the hands of men." It were too serious an answer to the gloomy authors of this extravagant objection, to dwell upon the frequent practice of purposely inducing a temporary disorder in the human frame, with a view to prevent the accession of a future more severe disease. A better answer cannot be given to these infatuated people than in the words of the ingenious Dr. SHEBBEARE; who, speaking of the practice of inoculation, says, "As to its being allowable, or not, let distempered divines oppose it if they will: only considering, that as the *fall* brought the danger of diseases into the world, I think we have a right to *get up again*, and drive it out, if we can." And really, if we consider the amazing success that attends the present improved method of inoculating for the small-pox, we cannot but suppose, that the blessing of God attends it in an eminent degree.

In

In order to execute with fidelity the task enjoined me, I propose, in the course of this letter, to make such remarks on Dr. DIMSDALE's pamphlet, as have occurred to me in a considerable share of experience in this new method of inoculation; to particularize in what respects my practice, and the result of that practice, differ from those of our author; to lay down a proper (and hitherto successful) method of preparation for sucking infants and young children; and to recommend such remedies as, I am convinced by repeated trials and observations, will be of singular service, and tend to make the practice of inoculation still more general and more secure. Such exemplary cases will be annexed, as tend to illustrate the observations I have made.

You will find that Dr. DIMSDALE, if left to his choice, declines inoculating children under two years of age. And though mortality in the inoculated small-pox, bears no manner of proportion to that in the natural way, even with these tender infants; yet, it were to be wished, that the inoculation of children could be deferred to about the age of two years. But this is
in

in many cases impossible to be done, consistent with their safety. You will probably have frequent occasion to inoculate them at a much more tender age; and I shall hereafter lay down such a method of preparation, as will, I hope, render the inoculation of these tender subjects as successful in your hands, as I myself have experienced it to be *. However, I would by no means have it understood, that I prefer this state of infancy to, or think it equally safe with, a more advanced age. On the contrary, I think it must be plain to every considerate person, that the various disorders to which infants are particularly subject, and the known fatality of these disorders, together with the impropriety of carrying the cooling and extinguishing method (in case of severe eruptive symptoms) to its utmost extent, in the

* Of about fifty young children from thirty-two days to two years of age, whom I have inoculated, not one has died. Two of them, indeed, were in danger of death;—the one from convulsive fits in the eruptive fever, (See Case I.);—the other from a disorder apparently independent of the small-pox, a catarrhal fever, and congestion of viscid phlegm, upon the lungs and pituitary membrane, endangering a suffocation, after the termination of the eruptive fever, See Case II.

the management of these tender subjects; all render the event of the operation more doubtful in these infants, than in children two years old and upwards.

But though some objections may be made to infancy, I believe few will apply to you whom you need refuse on account of old age. Persons past seventy have been inoculated, and have passed thro' the disease in a very favourable manner. The oldest that I ever inoculated, was a man of sixty-six *; who had the disorder in the slightest degree, without any sickness or eruption: complaining only of a few flying pains, and giddiness of his head, for one afternoon. See Case III.

In the old method of inoculation, great caution was used, to inoculate none but persons of sound constitutions, of pure juices, and in the height of health. In the present improved method, experience has sufficiently shewn, that the variolous matter is a poison *sui generis*; and is so little

* Since the former part of this letter was written, I have had a patient upwards of seventy; who passed through the disease very favorably, having not more than fifty pustules.

little influenced by a strumous, scorbutic, or other cacochymy of the blood and juices, that a variety of persons, who had for many years laboured under chronical complaints, nervous, scrophulous, and scorbutic disorders, rheumatism, gout, asthma, inveterate ulcers, &c. have with proper precautions passed through the disease as safely, and escaped as lightly, as any the most sound and healthy persons whatever. We meet, indeed, with many, who cannot bear, and to whom it would be imprudent to give, those preparations of mercury which are possessed of an active stimulus, and are rough in their operation. Yet there are but few who may not take it in some shape or other;—the various preparations of this mineral being admirably adapted to the different ages, constitutions, temperaments, and many diseases, of the human body. Some, indeed, there are, who ought to be, and have been, inoculated, without taking a single grain of mercury, in any form whatever.

However, a person labouring under any present disorder or indisposition, is not to be taken in hand rashly and unadvisedly, with-

out considering the causes, nature, and consequences of his disorder, what effects the necessary regimen and medicines may produce in the habit, and whether the *vis vitæ* be sufficient for the expulsion of the variolous matter. Neglect, or inattention, in these respects, may be productive of fatal consequences.

In regard to seasons, we find by experience, that inoculation may be safely practised at all times of the year. One general rule, however, is to be observed. Let the patients (if their business will permit) avoid the scorching sun and noon-tide heats of summer; and in the winter, let moderate exercise supply the place of large fires and hot cloathing,—more especially from the commencement of the eruptive complaints, until the eruption be completed. And with these precautions, the eruptive symptoms are in general less severe, and the eruption more moderate, in frosty weather, than at any other time.

A strict regimen, dietetic as well as medicinal, is necessary for the generality of inoculated patients. The different constitutions

tions and habits, require different kinds of diet. Adults, that are in high health, I confine to the diet particularized in Dr. DIMSDALE's second section, page 17. I forbid the use of butter in their puddings and pye-crust; and allow no milk but what has been deprived of its cream *. To persons of this class, I give the powder (which I entitle No. 1. †) and the purging salt

C 2 prescribed

* My general directions to my patients, are, to abstain from flesh, fish and fowl; flesh-broths, butter, cheese and cream; spices, and all heating things; vinous, spirituous, and malt-liquors. Eggs may be used in the puddings and pye-crust; but no fat or butter. Salt and vinegar with vegetables; but no pepper. Scalded or skimmed milk is to be used, where-ever milk is required. The diet, for breakfast, is to consist of tea, coffee, or chocolate, scalded or skimmed milk, with or without dry biscuit or bread. For dinner, and supper, all kinds of garden-stuff, and vegetables in season; all kinds of puddings and fruit-pyes; rice-milk; boiled rice, with or without raisins; milk-and-apples; roasted apples, &c.

† This powder consists of eight grains of calomel, eight grains of the compound powder of crabs-claws, and the eighth part of a grain of emetic tartar. The dose must be proportionably lessened for aged persons, weakly women, and children. It is to be taken at night going to bed, two or three hours after supper, mixed in a spoon with a little syrup, honey, or treacle; and the next morning, a dose of Glauber's salt, dissolved

prescribed by the Doctor, page 18. Our Author, in this place, directs a preparatory diet for the space of nine or ten days, and the administration of the medicines in this period, before the operation be performed. But this may safely be dispensed with, unless the patient labours under any disorder requiring immediate removal or alleviation. I seldom require more than one day's preparation, previous to the operation; and I frequently inoculate without any:—especially when applied to by persons who are in danger of taking the infection in the natural way. However, my general method is to inoculate on the day succeeding the operation of the first dose of the powder and salts; to confine the patient from this time strictly to his diet; and to repeat the mercurial powder and purging salt, twice, and sometimes (tho' not often) thrice, according to the strength and constitution of the patient, and the progress of infection.

This
 dissolved in a small cup-full of boiling water or thin water-gruel, to be worked off with water-gruel, or warm cow-whey. I have lately omitted the emetic tartar, in the preceding powder, without any perceptible inconvenience.

This method of preparation answers very well with the healthy and robust. But a very different course must be taken with many that offer, persons of weak nerves, valetudinarians, weakly women, and others; with whom so strict a diet, and the rougher preparations of mercury, would by no means agree. My method with the generality of these, is, to direct a diet something more generous than is allowed to the former class of patients; the daily use of a glass or two of wine, weak toddy, or punch; and, in some cases, a bit of white flesh for dinner. And to these I give small repeated doses of the mild mercurials, particularly the mercurius alkalizatus, (adding occasionally a grain or two of calomel), and a gentle purgative once in three or four days; not forgetting such other remedies, as may (in the words of our Author) “strengthen the constitution, if too low; and correct what appears vitiated.”

To children under five years of age, I never give Glauber's salt, as being too nauseous for such young subjects; and but seldom, the powder No. 1. Instead of these medicines, I generally give them two, three,
or

or four doses, of the purging powder No. 2 ;
which is composed as follows :

℞ Pulv. Jalap. ʒss.

— Rad. Rhei

Merc. Dulcis ā ʒij.

Tartar. Emetic. gr. vj.

Misceantur bene.

To those who require a milder purgative
than the preceding, I give as many doses
of the following powder, No. 3.

℞ Pulv. Rad. Rhei

Magnesiæ ā ʒj.

Merc. Alkalizat. ʒij.

Misceantur bene.

The doses of both these purging powders,
are to be carefully adjusted to the different
ages, and strength of children. To each
dose of the latter of the two formulæ, I
have upon occasion added a grain or two
of calomel. To the generality of my pa-
tients, as soon as I conveniently can, after
the infection takes place, I give the powder
prescribed by Dr. DIMSDALE, page 31 ;
lessening the dose for the infirm, for the
aged,

aged, and for children. This powder I entitle No. 4. *

The preparation of a sucking child, from one to three months, consists generally of two or three doses of the powder No. 3. For children from three to twelve months, instead of the No. 3, I prescribe, two days before the inoculation, a dose of the following powder to be taken that evening, and a little purging syrup the next morning.

No. 5. R *Merc. Alkaliz.* ʒi.

— *Dulcis*

Pulv. Gascoign. ā ʒss.

Misceantur bene.

The powder and purging syrup are repeated once or twice, according to the operation of the first dose, and the progress of infection.

If the nurse of the sucking infant is to be inoculated likewise, she is to follow the method above prescribed for adult persons.

And

* It is composed of three grains of calomel, three grains of the compound powder of crabs-claws, and one-tenth of a grain of emetic tartar.

And though the nurse should have had the disorder, or not having had it, should be permitted to take it from the child in the natural way, it is necessary that she submit to a regimen of diet and of medicine, in order to render her milk a bland and fit nourishment for the child, during the time of preparation for, and the first stages of, the disease. Therefore, I put the generality of them upon the same diet, and give them the same medicines (though not so often repeated), as if they likewise were to be inoculated. But to some nurses, who are weakly, and of delicate constitutions, it will be sufficient to give one dose of mild mercurial physic, and to forbid the use of the grosser kinds of diet only; such as beef, pork, butter, cheese, spirituous, vinous, and rich malt-liquors; allowing them small-beer, and the daily use of a bit of fresh mutton, veal, lamb, fish, or fowl, without rich sauces or high seasoning. This is my general method of preparation for infants; and I have found it so invariably successful, that I have never once been apprehensive of a sinister event from the number of pustules.

To

To labouring people, who are obliged whilst under preparation (from the day preceding the operation to the day of sickening) to follow their labour, I have frequently (in the heats of summer especially) allowed a pint, or three half-pints of cyder on a day,—the days of purging excepted. To these, and to all others, whose business requires them to be without doors, it is necessary to give a strict caution, neither to get wet to skin, wear damp clothes, nor, when sweating, to sit upon the cold earth, or in a damp place. The female patients should likewise be forbidden to be dabbling much in cold water, or handling wet linnen. For troublesome and even dangerous accidents may succeed imprudencies of this sort. And it appears to me, that the discredit brought upon the practice of inoculation in some few instances, by rash practitioners, has been owing to the neglect of giving the necessary directions, and proper cautions, on this head; to their indiscriminate, and (for some constitutions) immoderate use of the *same* mercurial medicine in the preparation; and to excessive purging in the eruptive fever.

D

Dr.

Dr. DIMSDALE informs us, page 21, that he had inoculated some women with child, who concealed their pregnancies, in hopes of abortions; but, however, that they did not miscarry. I have likewise inoculated two, who concealed their pregnancies from the same motive. One of these wretches, who had about fifty pustules, miscarried in five weeks from the inoculation. How far she was gone with child, I had not an opportunity to discover: her miscarriage, as well as her pregnancy, being for a time kept secret from me. The other had but three weeks to reckon, at the time of inoculation. She had not more than thirty pustules; and about ten days after their turning, was delivered of a fine girl; with imminent danger of her own life, from a profuse flooding. The child died before it was two months old *.

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* According to the best information I was able to procure, this child had no marks of the small-pox upon it. If it had lived, I intended (with the mother's consent) to have inoculated it for the experiment's sake. For in such a case, where there were no signs of the disease upon the body of the child, I should be very doubtful of its being secure from a future infection of the small-pox.

There was lately an itinerant inoculator in the West of England, who made no scruple to inoculate women whom he knew to be pregnant; promising to conduct them through the disease with the greatest safety. But the narrow escapes of several of these deluded women, soon induced him to decline so rash an undertaking.

I observed to you in the former part of this letter, that the diversity of constitutions and temperaments that present themselves as subjects for inoculation, require different preparations of the same noble mineral, the grand antidote to the variolous, as well as the venereal, virus. I would observe here, likewise, that the quantity, or dose, of each preparation, is to be carefully adjusted to the age, strength, and constitution of every patient. To all above the age of five or six years, who labour under no disorder, forbidding the free use of mercurials, I would chuse to give a sufficient quantity of the powders, No. 1, 4, or 5, to make the gum, or one of the salivary glands, tender to the touch. Therefore, if this symptom be not perceived a day or two before the

eruptive fever is expected, I generally repeat the dose of the powder No. 4, or No. 5. The quantity, however, necessary to produce this effect, varies according to the different idiosyncrasies of the human body. I have known a healthy active woman thrown into a salivation, by a lesser quantity of calomel than her child of five years of age took, without any effect on the gums or salivary glands. And I have observed, that those on whom so small a quantity of mercury has such speedy and powerful effects, pass through the distemper very favorably, and with little or no eruption.

Great stress has heretofore been laid, upon the *quality* of the infecting principle; and great care taken to procure it from a good sort of pocks, just before the crisis, when the pustules were quite ripe, and from persons who were in every respect healthy and sound. After repeated experiments and observations, it does not appear that the benignity or malignity of the disease does in any wise depend upon the *quality* of the *infecting matter*; but entirely upon the habit, and disposition of the blood and juices, of the *infected person*. Many, either
for

for the experiment's sake, or by reason that no better matter could be procured, have been inoculated with variolous fluid taken from a bad kind of pocks, from persons of foul habits and vitiated juices. These have passed through the distemper in as favorable a manner, and enjoyed as good a state of health afterwards, as any other persons whatever. On the contrary, it is well known, that some who were inoculated with as good matter as can be procured, who adhered strictly to their regimen both of diet and of medicine, and took all other necessary precautions, have had so large a share of pustules, and symptoms so unfavorable, as to make the operator for some time apprehensive of a fatal catastrophe: while others, inoculated with the same matter, and observing the same regimen both dietetic and medicinal, escaped with little or no sickness, and a slight eruption. However, to satisfy the patients, or their friends, and prevent any reflection in future, I always chuse to inoculate from a healthy subject; with variolous matter taken from the infected arm of an inoculated patient, or from a pustule of a good sort of the inoculated or natural small-pox, indifferently;

differently; for I have never been able to discover the least difference, either in the immediate or remote consequences, whether I used the lymph of an infected arm, before, at the time of, or after, the eruptive fever; or the matter of a pustule in the inoculated or natural small-pox, before, at the time of, or after, the crisis.

Neither does the severity or mildness of the subsequent disease, depend upon the quantity of infection introduced. For it appears from experiments made, that a considerable quantity of variolous matter conveyed into the course of the circulation, is not more capable of producing a bad species of the disease, or a larger share of pustules, than the smallest particle we can introduce. However, as so small a quantity takes affect, there is no cause for introducing more, or for making a larger wound, than is necessary to produce the disease.

My method of giving the infection is as follows. Having moistened the point of a lancet (or as many as I have persons to inoculate) in the variolous matter, I put it immediately into the case, with a bit of paper,

paper, or lint, between the extremities of the scales, to prevent the infected point from touching them. With this lancet I make two small punctures on the patient's arm, between the shoulder and the elbow; passing the lancet obliquely forward under the cuticle, and pressing my finger on the point, as I withdraw it from the second puncture, to wipe off the remains of the infection. On infants, I seldom make more than one puncture. It is never necessary to draw blood; and the smaller the puncture is made, provided care be taken to infect the very point of the lancet, the better is the progress of infection to be seen. I have used lancets three or four days after they had been dipped in the variolous matter; and, first moistening the points with hot water, they have not failed to communicate the infection. But as the effect of these is not so certain, and disappointments in this respect are disagreeable on several accounts, both to the operator and the patient, I have not done this but in cases of necessity. A doffel of lint, well saturated with variolous infection, may likewise be carried in a broad-mouthed phial, well corked; and the point
of

of the lancet moistened with this, at the time of performing the operation.

The practice of taking the persons to be inoculated, into the same room with those that are in the stage of maturation, either by inoculation, or in the natural way, and opening the pustules in order to procure the infecting principle, in the presence and in the sight of the persons to be inoculated, appears to me to be extremely hazardous, as well as unnecessary. With many patients, and perhaps with the majority, it may be productive of no ill effects. Yet I cannot but think that all of them, and especially those who are naturally fearful of the small-pox, must run great risk of taking the infection in the natural way.

Though the generality of patients be infected from the first inoculation, yet some few we meet with who do not take the infection until the operation have been performed a second or a third time. For this reason, I have always forbidden any intercourse with infected persons or houses, until the signs of infection were evident. Even then I have not been fond of their being
in

in places strongly infected, but have kept them off if I could, until the time the eruptive fever was expected. For though I were always of opinion, that there could be no accumulation of infection, yet I have sometimes been ready to change that opinion, upon the following appearances, which have often occurred to me in practice. The signs of infection are in some persons so dubious, that we are frequently at a loss to determine, several days after the operation is performed, whether it have really succeeded, or not. In these cases, when the patients are in danger of taking the infection in the natural way, I inoculate them a second time. These persons generally prove to be infected from the first inoculation; though some few there be, who do not. But even in those on whom it afterwards appears that the first insertion had succeeded, the *last punctures (except they be made within thirty or forty hours of the appearance of the eruptive symptoms *)* rise as well as the *first*;

E

and

* The progress of the infection in the blood and juices, is generally denoted by an equal progress of the elevation and inflammation of the infected part. To this general rule, however, as to all others, we meet with some exceptions.

and in a few days are full as forward as, and proceed through the succeeding stages of maturation and exarefcence, with the first. I have, in these doubtful cases, performed the operation a second time, on the third, fourth, fifth, sixth, and eighth days, after the first inoculation. If the second punctures be made within thirty or forty hours of the attack of the eruptive fever, the appearances abovementioned do not take place. This circumstance at first made me inclinable to think, that there might be an accumulation of infection, until a certain period preceding the appearance of the eruptive symptoms. But upon examining my list, where I kept a regular account of the age, day of inoculation, day of sickening, and quantity of pustules of every patient, and finding that every one of these persons passed thro' the distemper lightly, and that not one of them had a large share of pustules, I remained at a loss to account satisfactorily for these particular appearances of additional infection, in consequence of a second inoculation. Thus much, however, the above remark seems to prove,— that *if there be* an accumulation of infection, it hath no power to add to the severity of the distemper;

per; and therefore justifies the observation before made, that the malignity of the disease doth by no means depend upon the *quantity* of infection introduced.

I have inoculated, likewise, in places where the small-pox was at the same time rife in the natural way. And among the inoculated persons, there were some who had taken the infection naturally, before the artificial insertion. If the eruptive fever succeeded the operation in a day or two, there was (as in the former instance) no rising or inflammation in consequence of the punctures. But if the inoculation were performed (as it was on two or three of these persons) four or five days before the appearance of the eruptive symptoms, there were signs of infection, and the inflammation of the punctures continued for some days, as well as if there had been no previous infection in the natural way. The sudden attack of the eruptive fever (before it could be expected in consequence of the inoculation, and before the progress of the *seeming* infection on the arm indicated any such event), together with the severity of the eruptive symptoms, was sure to denote a

prior infection of this kind. Since the observance of the appearances abovementioned, I have, for obvious reasons, been cautious of pronouncing those persons to be infected by the inoculation, who were suspected of having previously taken the infection in the natural way.

Considering the many advantages that arise from the present general manner of communicating the infection, it is surprising that many operators still continue the old method of making an incision in, or cutting off, a small portion of, the skin, and introducing a piece of cotton, or some other extraneous substance, saturated with variolous matter, confined by bandage, and dressed daily with ointments and plaisters of a suppurative and digestive quality. The natural appearance of the progress of infection, undisguised by the application of plaister or ointment, will undoubtedly enable us, in many cases, to foretel whether the disease will be favorable, at what time we may expect the eruptive fever (which in different constitutions happens at different periods of time from the day of inoculation), and many other particulars that may be serviceable to us in the progress

progress of the disease. By the present method of communicating the infection, we likewise prevent the very frequent and troublesome consequences of the old method of performing the operation, viz. deep phagedænic ulcers at the places of insertion; which sometimes prove very tedious, and difficult of cure.

The progress of infection is quicker or slower, according to the different constitutions and temperaments of the human body. In general, it is as described by Dr. DIMSDALE, in his 31st and 32d pages; and commonly in forty-eight hours after the operation is performed, we are enabled to pronounce the patient infected, from a sensible hardness, elevation and inflammation, at the places of insertion. But in some persons, as I have observed above, page 25, the progress on the arm is so slow, that even on the eighth day I have been at a loss to determine, whether the infection had actually taken place, or not. Dr. DIMSDALE says, page 35, “ I have *constantly* “ observed, that an early progress on the “ arm, and an early commencement of the “ eruptive complaints, portend that the “ distemper

" distemper will be mild and favorable ;
 " and on the contrary, where both are late,
 " the symptoms are usually more irregular
 " and untoward." To the former part of
 this observation, I have met with many ex-
 ceptions: one or two of which I shall sub-
 join, as they may possibly be useful to you
 in your future practice. See Cases I. and IV.
 I seek not for occasion to invalidate the
 testimony of so experienced a practitioner ;
 but think it incumbent on me to observe to
 you, that the latter part of the above extract
 does not agree with observations carefully
 made, as well upon those patients inoculated
 by me, as upon others, though not under
 my immediate care and inspection, yet in-
 oculated and prepared exactly according to
 the method laid down in these sheets. The
 case of one of the first persons I ever in-
 oculated, induced me to make particular
 observations in future, on these circum-
 stances of a slow progress on the arm, and
 a late commencement of the eruptive symp-
 toms. The signs of infection on this
 woman's arm were so backward, that I
 could not absolutely pronounce her infected
 'till the sixth or seventh day from the in-
 oculated. She had no symptoms of the
 eruptive

eruptive fever until the evening of the eleventh day; when she complained of a coldness, slight shiverings, and pain in her back. These symptoms continued for a few hours; and were succeeded in a day or two by an eruption of three or four pustules only. Many cases of the like kind have occurred to me; some of which I shall hereafter transcribe. See Cases V. VI. and VII. Upon examining my list, I find that those who have had the greatest number of pustules, are such with whom both the progress on the arm, and the fever of eruption, have been rather early than late; the eruptive symptoms commencing on the sixth and seventh, and with none of them later than on the eighth day after the inoculation. And so true is it that those on whom the progress of infection has been slow, and whose arms have been so very backward that it was difficult to determine whether they were infected on the fourth, fifth, sixth, seventh, and eighth days, have escaped lightly, and with little or no eruption; that among three hundred and twenty-five persons, inoculated from June 1768, to June 1769, (at which time the account was regularly and exactly kept), I find only one instance

instance to the contrary. And this patient I know to have been very irregular in her diet, particularly just before the attack of the eruptive fever. This case, which I take to be much akin to the fifteenth, sixteenth, seventeenth (excluding the peripneumonic disorder), and eighteenth of Dr. DIMSDALE, is the eighth of those subjoined at the end of this letter. I would observe here, however, that in all cases of a slow progress of infection, and especially in athletic, corpulent, and gross habits, I have given one or two doses extraordinary, of the No. 4, or 5; and a gentle purgative, if necessary. I have said thus much (the result of experience and observation), to prevent you from making an hasty unfavorable prognostic, upon the cases in question.

The extraordinary cooling and extinguishing method pursued in the eruptive fever, in the present improved state of inoculation, is so opposite to the means heretofore used, that many practitioners in the old way come into it with difficulty. To compel the patients, (I speak now of those with whom the eruptive symptoms are severe), to keep themselves out in the open
air,

air, and to drink of cold water, even in the
 winter-season; and to hinder them (hardly
 able to stand without assistance) from taking
 to their beds, or even from sitting by a
 good comfortable fire; is a method of
 treatment by many thought too severe. But
 if they will take the trouble to compare
 any number of patients treated in this man-
 ner, with an equal number that have been
 managed after the contrary method, they
 will soon be convinced of the good effects
 of the modern practice; and will be in-
 duced to think with Dr. DIMSDALE, " that
 " instead of supposing the fever in the small-
 " pox to be the instrument employed by
 " nature to subdue and expel the variolous
 " poison, we should rather consider it as
 " her greatest enemy; which, if not vigor-
 " ously restrained, is apt to produce much
 " danger: and that all such means should
 " be used as are most likely to controul
 " its violence, and extinguish the too great
 " fervor of the blood." And it is un-
 doubtedly matter of fact, that every external
 or internal remedy that tends to subdue the
 fever, will prevent and lessen the number
 of eruptions. On the contrary, whatever
 tends to increase the fever, whether out-
 F wardly

wardly applied, or inwardly administered, will augment the number of pustules, and consequently the danger.

When I first began the practice of inoculation, I was frequently distressed for some powerful and efficacious remedy to administer when the eruptive symptoms were severe, the fever high, and there was a prospect of a plentiful eruption. The remedies recommended for this purpose by Dr. DIMSDALE, in his 33d page, did not in many cases give sufficient and timely relief. After a trial of various mercurial, antimonial, and purgative medicines, I am bold to recommend the following to you, as a remedy, than which a better is not to be found, for the purposes hereafter mentioned. I do not know that I have ever given it without a good effect, and seldom without a speedy relief of the pressing complaints for which it was given. The form which I generally use, is as follows.

R *Merc. Dulcis*

Tart. Emetic. ā ʒj.

Terantur simul in mortario marmoreo.

*In pulverem subtilissimum redactis,
paulatim inspergantur,*

Antim.

Antim. Diaph. Nitrat. Pulv. ʒij.

*His bene admistis, addatur Sap. Venet.
q. s. ut fiat massa, cujus formentur
pilule triginta.*

If the fever of eruption runs high; if the pains (of the loins particularly) be violent; or, if there be a seeming load upon the stomach, with sickness and retching to vomit; I give (to an adult) one of these pills, and repeat it, if there be occasion, in six, twelve, twenty-four, or forty-eight hours, according to the relief obtained by the first, and its manner of operation. If there be any foulness of the stomach or primæ viæ, it generally operates by vomit or by stool, and frequently by both. If taken going to bed, or in the night, it sometimes operates by sweat. At other times, though it have no sensible operation, yet is the patient greatly relieved. When it operates by vomit, I order the operation to be promoted by draughts of tepid water, or a weak infusion of chamomile flowers or common teas. I remember to have given five of these pills to one of my patients, a youth thirteen years of age, with whom the eruptive symp-

toms were pretty severe for three or four days. The first pill vomited him, and brought up a quantity of bileous phlegm; the second purged him; the third had no sensible operation; the fourth sweated him; and on the fourth day of the eruptive fever, thinking his fever was increasing, he took a fifth, which purged him twice. He was from this time free from complaints; had about thirty fine pustules, and is now in perfect health. However, one or two of these pills generally prove sufficient; and it is to be observed, that with the majority of inoculated patients, the eruptive symptoms are so mild and favorable, that the use of these pills is not necessary; and that they are to be given only under the circumstances abovementioned, when the eruptive symptoms are severe. For there may be pains of the loins, sickness at stomach, &c. from weakness and lowness, after the termination of the eruptive fever; in which case these pills may be extremely prejudicial. To children, and other persons, to whom the form of pills is inconvenient, this medicine may be given in powder, (omitting the soap in the preceding formula, and in its stead adding two drams of the Pulvis e Chelis compo-

compositus), mixed up with a little jelly, honey, or other convenient vehicle; regulating the dose according to the age and strength of the patient. It may likewise be prepared with a lesser quantity of calomel, or with any other mercurial preparation, if the particular circumstances of the patient require it. A few grains of the powder may, in urgent cases, be safely given to young children at the breast. During the operation of this medicine, the patient is to refrain from cold water, and the open air likewise, if it be rough or wet weather. Afterwards, he is to return to his airy walks, his water, &c. If particular circumstances forbid the use of medicines, which sometimes operate by vomit, instead of the former medicine, I give the Pil. Cocc. with calomel; or, if a milder medicine be required, a dose of the powder No. 4, or No. 5, and any of the gentle purgatives in common use, three or four hours after.

I have experienced great advantages, likewise, from the use of the following liquor, or punch, when the fever of eruption runs high,

R. Crem.

*R Crem. Tart. ʒij.
 Aq. Font. Bullient. ℥ij.
 Spt. Vitriol. Ten. gutt. 60
 Sacchari Rubri ʒj, vel q. s. ad
 tollendam austeritatem.*

A quarter of a pint of this liquor drank cool every two or three hours, will be very serviceable in lowering the fever. It is not to be taken during the operation of the extinguishing pills, or other emetic or cathartic medicine.

By a proper observance of the method and medicines above recommended, all troublesome symptoms are for the most part prevented. The number of pustules is generally inconsiderable, and hardly ever so great as to confine the patient. As soon as those on the upper part of the body (if any there be) begin to fill, I allow the generality of my patients a diet something more generous than that to which they are strictly confined 'till this time. This frequently occasions a trifling addition to the number of pocks on the extremities; which removes the apprehensions some persons are apt to entertain, of ill consequences from

from the cooling and repelling methods before used; and supercedes the necessity of frequent purges after the stage of exaref-cence, in the inoculated small-pox.

In what has been said above, of the method of treatment in the eruptive fever, some allowance is to be made for the management of weakly persons and tender children.

The caution given by Dr. DIMSDALE, page 40, in regard to the return of the patients to their usual diet, is extremely necessary. A neglect of this caution may be attended with bad effects. An instance of this I shall hereafter give. See Case IX.

Among other anomalous symptoms and appearances, enumerated by Dr. DIMSDALE, in the 43d and following pages, is the erysipelatous efflorescence, or rash; which is sometimes thrown to the surface of the body by the preparatory medicines, but is more frequently a concomitant symptom of the eruption, especially in children, and I think I have never found it an unfavorable one; not one of those who

who had a rash about the termination of the eruptive fever, having had a plentiful eruption *. It seldom proves troublesome: and by confining the patient within doors, directing a plentiful use of warm diluting liquors, and a gentle laxative, if he be costive, it generally disappears in two or three days.

I have had many patients who passed over the disease in the irregular manner described by the Doctor, pages 47, 48, and 49. But two instances have occurred to me, in which, after irregular symptoms and appearances of this kind, the patients have taken infection from a second inoculation, and passed through the several succeeding stages in the same manner as if the first inoculation had never been performed. I shall annex these two cases †, (in which I have described the symptoms and appearances, consequent of the first and second inoculations, with the utmost exactness),
in

* I have met with only one instance of an appearance of this kind, that was in any respect alarming. This was on a child of a remarkable ill habit, four days after the inoculation. See Case X.

† See Cases XI. and XII.

in order that you may form a proper judgment thereon, and be fully convinced of the expediency of performing the operation a second time, on all such as appear to pass over the disease in the very slight manner described by Dr. DIMSDALE, in the pages above referred to; since a neglect in this particular, may be productive of consequences fatal to the patient, and very disagreeable to the inoculator.

I have met with only one case that bears any resemblance to those described by the Doctor, in his 51st and 52d pages; and this you will find to be the eighth of those I shall give at the end of this letter, by way of illustrating and confirming what has been advanced in the foregoing pages.

Those old women and nurses, to whom the care of persons in the small-pox, is (too often for the welfare of the unhappy patients), intrusted in country places, are so obstinately prejudiced against the cooling and extinguishing methods us'd in the eruptive fever, in the present practice of inoculation, that you will sometimes meet with the greatest difficulty to make the patients

G

per-

persevere, in keeping themselves in the open air, and in following such other directions as are given them for their management in the eruptive fever. These officious persons, by their prescription of a cordial or a good comfortable cup, to *drive them out* as they call it, shall cause you more trouble and uneasiness with one that follows their advice, than you will have with fifty others who adhere to the directions you give them. And it is but too often, that a patient labouring under violent pain, or the severity of a rigor, is prevailed upon by these ignorant persons, to do what he sorely repents of in a few days. For this reason, I am always cautious how I suffer a small-pox nurse to be attendant on those that are inoculated by me; being well convinced, that their *good things* are by no means convenient for *my* patients, but are likely to be productive of worse consequences than those which they are given to prevent. In fact, the ill effects that are said to be inseparable from the cooling and extinguishing methods now used in the eruptive fever, exist only in *imagination*,— at least with respect to those whom I have inoculated: for I can with truth declare, that none of my patients have

have suffered any permanent ill effect; nor have I met with a single instance even of a boil, or those frequent consequences of the natural small-pox, opthalmics, and cuticular defædations. On the contrary, many of my patients have received great benefit from the regimen and medicines; and are free from complaints to which they had been subject for many years.

The vulgar notion, that the pocks are retained in the habit to the prejudice of the patient's future health, by means of cold air, cold water, evacuations, &c. in the eruptive fever, is in itself exceedingly absurd. If the matter be attentively considered, it is plain, that the eruptive fever is the chief instrument in assimilating the fluids of the human body into the nature of the variolous virus; and that at the first appearance of the eruptive symptoms, when the variolous matter has made no farther progress in the assimilation of the blood and juices, than to stimulate the nervous parts into stronger and more frequent contractions, by this means increasing the momentum of the blood's motion, and thus exciting a fever; I say, it is plain, that at this time, the matter

constituting the pocks; and which they fear will by the cooling extinguishing method be driven back and retained in the habit, is not existing; but is afterwards produced by the reciprocal action and reaction of the stimulating principle and the fibres of the human body: and we know by experience, that every thing that increases this stimulus, and the impetus of the blood's motion, adds to the malignity of the disease. Hence, in order to prevent severe symptoms, and a large share of pustules, reason indicates (and experience has confirmed the utility and safety of) such remedies as obstruct the assimilation of the variolous matter, and check the violence of the fever. That the extinguishing method may be carried too far, I do not deny. This, in common with other benefits, may be abused. And some instances might be produced, of good constitutions impaired, by rash practitioners, through excessive purging in the eruptive fever. But these particular abuses do not invalidate the propriety of the general practice judiciously pursued.

The inflammations, tumors, abscesses, exulcerations, and detædations of the skin, that

that so frequently follow the natural small-pox, are to be considered for the most part, as the consequences of acrimony and obstruction in the glandular system and small vessels, by the remains of an acrimonious variolous matter. It is to be observed, that those who are most subject to disorders of this kind after the natural small-pox, are (*cæteris paribus*) such as have the distemper in the severest manner. If, in the management of inoculated patients after the turn of the pocks, a proper regard were paid to this observation, I am persuaded that the operator might very well lessen the number of doses of purging physic usually given. If the pustules be few in number, I never give more than two mild purges after the stage of exarefence. And if we consider how low the patients are reduced, by the preparatory medicines and diet, and by the eruptive symptoms (which with some are pretty severe for two or three days), we need not be surprised, that the addition of three or four strong purges should sometimes be attended with disagreeable effects. Instances *may* occur, no doubt, where four or more purges, in the space of a fortnight or three weeks, may be given with propriety.

priety. In case of a large share of pustules, where a considerable quantity of the variolous matter must necessarily be absorbed, and, if not carried off by some of the excretories of the body, be productive of disease in the internal or external parts, they are absolutely necessary. But for the generality of inoculated patients, two gentle purges after the stage of exarefence will be sufficient; and the practice of others has convinced me, that more than these are frequently prejudicial, especially if the doses be repeated too quick upon each other.

The opportunities I have had of treating persons in the natural small-pox, after the method above described for the management of inoculated patients, are but few. These few, however, are sufficient to convince me, that the advantages to be reaped from such a method of practice in the natural small-pox, are very great. The extinguishing pills, page 35, I have found to be of great service in the eruptive stage*, through their operation by vomit, stool, or sweat, abating the violence of the symptoms,

* See Cases XIII. and XIV.

toms, and retarding the eruption; which last, how dangerous soever it may heretofore have been thought, and how opposite soever to the practice of both ancient and modern physicians, experience now proves to be not only safe, but extremely salutary. I therefore prepare a person for the natural small-pox, and treat him in the eruptive fever, in the same manner as for the inoculated. If called to a person sickening in the natural way, without any previous preparation,— I immediately have recourse to the extinguishing pills; and if these fail to operate by stool, I give a pretty smart mercurial purgative.

You will find it to be Dr. DIMSDALE'S opinion, page 83, that the amazing success that has attended the present improved state of inoculation, is owing in great measure, to the method of inoculating with *recent fluid* matter. I have observed to you in the former part of this letter, that I have used lancets three or four days after they had been moistened with the variolous matter; and that I have inoculated with the clear fluid taken from the infected arm of an inoculated patient, before, at the time of,
and

and after the eruptive fever; and with the matter of a pustule, taken from the inoculated or natural small-pox, indifferently, before, at the time of, and after the crisis: and I have never been able to discover, that the benignity or malignity of the disease does in any wise depend either upon the *recency* or *staleness*, the *quantity* or the *quality*, of the infecting principle. It seems to me, therefore, that the extraordinary success that attends the present practice of inoculation, is to be attributed, conjointly, to the mercurial preparation, — to the mild, low, poor diet, — and to the cold air, and extinguishing remedies administered in the eruptive fever.

The foregoing pages, sir, contain every thing essential that at present occurs to one upon the subject before us. I look upon the improvements of late years made in the practice of inoculation, to be an inestimable blessing to mankind; myriads of whom will in all probability have received a prolongation of life, by means of this salutary art. Of many hundred patients, from thirty-two days to seventy years of age, whom I have

have treated after the method laid down in these sheets, not one has died either in the small-pox, or in any other disease that could possibly be attributed to inoculation. I sincerely wish, that in this important branch of our profession, you may be equally successful; and am,

S I R,

Yours, &c.

Bristol,
September 26, 1771.

JOHN BLAKE.



H

CASES

C A S E S

IN

I N O C U L A T I O N.

C A S E I.

G. A. a sucking infant, six weeks old, was inoculated on the same day with his mother. The progress of infection on the arm of this infant, was quick; and on the sixth day, inclusive, he sickened. The eruptive fever ran pretty high; attended with convulsive fits, so frequent, and of such long duration, that I almost despaired of the child's life. By means of antispasmodics internally given, and the use of a warm pediluvium, they became less frequent; and upon the appearance of a pretty plentiful eruption, entirely left him. The

pustules advanced properly to maturation, and the child passed with little trouble thro' the disease.

C A S E II.

C P. a sucking child five months old, was inoculated in June 1769. The signs of infection were evident in forty-eight hours after the operation was performed. But from this time the progress on the arm was slow. On the morning of the sixth day, including that of the operation, symptoms of a slight cold appeared upon the child, viz. a defluxion on its eyes and nose, sneezing, &c.; and on the seventh day, a hoarseness and moist cough. On the eighth and ninth days, the cough continued much in the same state; nor did it appear sufficiently troublesome to require medicinal assistance. On the ninth day, symptoms of the eruptive fever were perceived. On the afternoon of the tenth day, I found that she had been very restless and troublesome, with a pretty high fever, and an increase of the cough. She was then temperate, and her pulse not quick. A florid efflorescence, as is usual at the termination of the eruptive fever,

fever, began to be formed round the place of insertion, and a large pock appeared about an inch from the puncture. Upon these appearances, I pronounced the eruptive symptoms to be pretty well at an end; and directed two tea-spoonfuls of the following medicine to be given frequently for the cough and hoarseness.

R. *Ol. Amygd. dulcium*

Mellis clarificat.

Syr. Violar. ā ʒss.

Vin. alb. ʒiij.

Spt. Sulph. p. Campanam ℞. S. ad gratam aciditatem. M. fiat Linctus.

On the morning of the eleventh day, I was desired to visit her in haste. I found that she had passed a very restless night, with a strong fever, and almost perpetual crying. Her pulse was then very quick; and she laboured under so great an oppression, from a collection of viscid phlegm in the ramifications of the bronchus, that her respiration was almost as short and as quick as her pulse. A blistering plaister was applied between her shoulders; and a small table-spoonful of the following mixture,

was

was directed to be given her every three hours.

R. Sal. Vol. C. C.

— *Absynth. ā Dj.*

Succ. Limon. ℥j.

Sperm. Ceti (vitello ovi subacti) ℥ij.

Syr. Simplicis. ℥ss.

Spt. Vol. Arom.

— *Nitr. Dulcis. ā gutt. xv.*

Aq. N. M. ℥ij.

— *Pulegii S. ℥iss.*

M.

In the first dose of this medicine were given ten drops of Huxham's essence of antimony; which made her puke once, and brought up a quantity of viscid phlegm. The same number of drops was given with the second dose; which operated two or three times by vomit, and discharged more phlegm. Two hours after the latter dose, the child appearing to be but little relieved, and still in danger of suffocation from the great quantity of viscid phlegm in the branches of the bronchus, a powder was given her, containing *Merc. Dulcis & Tart. Emetici*, ā gr. jss. this, in the space of two hours, vomited

vomited her gently several times, and purged her twice or thrice. Great quantities of phlegm were discharged by vomit; and some likewise by stool. Her respiration became much more free; and her fever abated considerably. The use of the volatile saline mixture was continued; and on the thirteenth day from the inoculation of the small-pox, the child was entirely free from fever, breathed quite easy, and coughed very little. On the fourteenth day, the cough was again increased; and considerable quantities of viscid phlegm were thrown up in the fits of coughing. On the morning of the fifteenth day, after a quantity of phlegm had been thrown up by a violent fit of coughing, which lasted (with short intervals) almost an hour, a powder was given her, containing Merc. Dulcis & Tart. Emetici, \bar{a} gr. ij. This did not operate by vomit, but purged her twice, and brought off a large quantity of viscid phlegm. From this time the child mended daily, and soon perfectly recovered. This infant had only one pock; nor did this ever proceed to maturation.

CASE

C A S E III.

W M. aged sixty-six, very healthy and of a thin habit, was inoculated in May 1769, together with his wife and son; the former fifty-five years of age, excessively corpulent, and subject for many years to an asthma, and fainting fits attended with cold sweats; the latter a youth of seventeen years, who had taken disgust two days before, at a person who had the small-pox full upon the face. Three days after the operation, the signs of infection on the old man's arm were very doubtful. But on the sixth day inclusive, they were so far advanced, that I gave him directions for his management in the eruptive stage, imagining it would commence on that day. Upon visiting him two days after, and inspecting his arm, I perceived by the florid efflorescencies surrounding the places of insertion, that he would have no farther illness in consequence of the inoculation. I found that his head had been a little giddy, and that he had felt some slight shooting pains in his thighs, on the latter part of the day
on

on which I last saw him. He had not a single pustule. The erysipelatous efflorescence on his arm began to grow dusky on the eleventh day, and totally disappeared on the fourteenth; leaving two thin scales at the places of insertion. The old woman, his wife, sickened on the ninth day; and had a favorable eruption of about an hundred and fifty pustules. Their son sickened on the eighth day, and had about thirty pustules.

CASE IV.

IN the latter end of April, thirty persons were inoculated; and among these were a sucking child seven weeks old; and his mother. The progress of infection on the arm of this infant, was quick; which made me hope that the eruption would be moderate. On the morning of the sixth day inclusive, two pocks appeared; twenty-four hours after there were several scores; and at the end of the ninth day, there was a pretty plentiful eruption. The child had no feverishness, restlessness, or eruptive symptoms of any kind, preceding the ap-

I

pearance

pearance of the eruptions. During the stage of maturation, gentle anodynes were prescribed, to be given towards night particularly: and on the fifteenth day from the inoculation, the pustules were perfectly dry, from head to foot. This infant's sister, four years of age, sickened the first of eight others in the same house, had more severe symptoms in the eruptive stage, and a greater number of eruptions than all the rest put together. A young man, inoculated on the same day with these, sickened on the sixth day inclusive. The eruptive symptoms were very severe, and continued four days. A pretty plentiful eruption succeeded. The inflammation surrounding the punctures on the arms of the two first persons I ever inoculated, was greater at the accession of the eruptive fever (which commenced rather early), and they had the disease more severely than any others that I have since inoculated. I could give other instances of this kind: but the foregoing (together with the first) cases, will be sufficient to illustrate the position,— that an early progress on the arm, and an early commencement of the eruptive symptoms, are

are far from being *certain* indications, that the distemper will be mild and favorable. You will find too, among the most irregular and untoward of Dr. DIMSDALE's patients, that they sickened early. See his XVth, XVIth, and XVIIth Cases.

The mother of the sucking infant that is the subject of the fourth case, sickened on the ninth day inclusive, and had five pustules only. And I have observed, that those women who give suck, have in general but very few eruptions. The child was inoculated two days before the mother, by her particular desire. The reasons she urged for this procedure were, 1st, that the child might sicken before her, and she be thereby enabled to take care of, and manage him properly in the eruptive fever: 2dly, that in case it should so happen, that the child did not take the infection from the first or even second inoculation, there might be a distance of time sufficient to repeat the operation twice, before she could possibly sicken, and the child receive the infection by her milk. To satisfy a tender and affectionate parent, both these reasons were

admissible; though the latter, we have reason to think, will be found upon examination to be grounded upon a wrong principle. For it is to be observed, that when sucking children take the infection in the natural way from their nurses, they seldom sicken sooner, but often much later, than on the eighteenth day after symptoms of the eruptive fever were first perceived on those persons whose breasts they suck. Consequently, allowing the general run of eight or ten days, from the time of being infected, to the time of sickening, they must receive the contagion long after the termination of the eruptive fever, at a time when the pocks abound with matter, and the disease is easily admitted by contact or inspiration, without supposing the mother's milk to be the means of conveying the infection into the blood and humours of the sucking child. This opinion of the inefficacy of the mother's milk to infect the child before the stage of maturation, will be corroborated by this consideration,—that very few of those infants whose mothers had the small-pox whilst they (the infants) were *in utero*, are secure from a future infection of the disease.

For

For if, even after the crisis, when the putrid variolous matter is taken up by the absorbent veins, and diffused through the whole system of the pregnant woman, from whom a nutritive fluid for the support of the Foetus is constantly derived; I say, if in this state, the juices of the mother's body do not communicate the contagion to the tender foetus in utero, much less will the mother's milk infect the sucking child *before* the stage of maturation, at which time it is easily (and I believe always) infected, by contact with the variolous matter, or infected cloaths; or by inspiration, taking into the lungs the variolous miasmata, as it sucks at the breast.

CASE

CASE V.

G L. five years old, was inoculated on the second of December. On the third day inclusive, he appeared to be infected. But from this time to the eighth day, the inflammatory appearances made so little progress, that I was doubtful in regard to the success of the operation. I therefore inoculated him a second time, with crude matter taken from beneath the pellicle on the arm of one of those that had been inoculated with him eight days before. In twenty-four hours after the second operation, all the punctures shewed very evident signs of infection: and on the evening of the tenth day from the first inoculation, he sickened. The eruptive symptoms were very favorable; and the eruptions did not exceed a dozen in number. This, and the following, were of those cases mentioned in the twenty-sixth page, in which both the first and second punctures rose finely, and became large pocks full of matter. This case likewise justifies the remark made in the page above referred to, — that the progress

gress of the infection in the blood and juices is not always denoted by an equal progress on the arm. For it appears that this boy sickened on the evening of the tenth day; though, on the morning of the eighth, it were difficult to determine, whether he were infected, or not.

CASE VI.

IN the month of February, thirty-nine persons were inoculated. Of this number there were six, on whose arms the signs of infection were so backward, that on the fifth day after inoculation, and with three of them on the sixth, I was at a loss to determine whether the infection had taken place, or not. Three of them were inoculated a second time. Upon visiting them two days after this, it was evident that they had taken infection from the first inoculation; and these with the three others sickened on the ninth and tenth days. The eruptive symptoms were in no wise severe with either of them; and the number of eruptions

eruptions on each was as follows: 7, 10, 15, 20, 20, 30.

CASE VII.

S. B. a sucking infant, thirty-two days old, was inoculated, February the 28th. In forty-eight hours after the operation, the signs of infection appeared. From this time they advanced so slowly, that on the ninth day, the inflammation and elevation at the place of insertion, were but little different from the state they were in on the second day after the operation was performed. I was a little anxious for the event, on account of the uncommon backwardness of the arm in so young a subject. On the eleventh day, the inflammation began to spread round the puncture (which was now considerably elevated), and continued to increase for three days, until it became as large as a half-crown piece, accompanied with a florid efflorescence, almost surrounding the arm. From this time, the inflammatory appearances gradually diminished,

minished, leaving a scab where the puncture was made, as large as a silver penny. During the whole time, the mother did not perceive that the child had any illness whatever; nor was there a single eruption. Other cases of this kind I could here subjoin: but as they are, for the most part, but bare repetitions of the facts contained in the three foregoing cases, the publication is unnecessary.

CASE VIII.

A Healthy young woman, twenty-four years of age, was inoculated in June 1769. The signs of infection on the third day after the operation, were very doubtful; and continued so for some time. On the eighth day, the inflammatory appearances were considerably increased; she had a slight rigor; and an eruption appeared the next day upon her under lip, which by the following morning had a small vesication on its surface. On the tenth day, another appeared on her arm; and on the eleventh, a third on her cheek. These disappeared in two or three days: nor could they have

been deemed variolous, if an eruption had not been at that time expected. On the twelfth day, the inflammation on her arm seemed to be declining. As she was uncommonly sollicitous to have some few pocks, she was permitted to eat a bit of boiled meat, and to drink a quarter of a pint of ale. She had the same indulgence the next day. Perceiving that this procured her no eruptions, she unadvisedly returned to her father's house, and fed upon bacon and other gross food. On the fifteenth day, her arm began to look fiery-red; she was sick at stomach, and had a slight head-ach. In the evening, ten or twenty eruptions appeared; and at the end of two days, they amounted to several hundreds. They matured kindly, and turned at the proper time.

CASE IX.

A Fine boy, three years old, was inoculated in October 1769, and had a moderate number of eruptions. Upon returning to his usual diet he had a most voracious appetite; and was indulged with
quan-

quantities of cheese, and other viscid food, of which he was very greedy. In about a fortnight his appetite began to pall; he looked pale and sickly; and was troubled with a frequent cough, occasioned by a defluxion upon the Larynx and Aspera Arteria. This defluxion increased; and in a few days became so viscid and tenacious, that it was with the utmost difficulty that he expectorated. A high fever was excited; and such quantities of viscid phlegm were collected in the ramifications of the Bronchus, that the child was in imminent danger of suffocation. He was some time in this condition before his friends applied for proper relief. A blistering plaister was laid to his back; five ounces of blood were drawn from his arm; and the same volatile and expectorating medicines were prescribed, as in Case II. By these means he began to expectorate more freely; and the fever abated. But the relief obtained being inadequate to the urgency of the symptoms, a powder was given him, containing Merc. Dulcis, Tart. Emetic. \bar{a} gr. iij. This vomited and purged him several times; and an amazing quantity of phlegm was discharged, particularly by vomit. Respiration was greatly

relieved by these operations ; and the fever was entirely subdued. The expectorating medicines were continued. He mended daily, and is now in perfect health. It may possibly be asked, how an emetic, *as such*, is productive of these happy effects, in infarctions of the lungs from viscid phlegm, &c. In answer to this, it is well known, that the advantages obtained by emetics, do not always arise from the discharge of the contents of the stomach only ; but frequently, from the shock given to the whole vascular system, and from the strong contractions into which the several secretory and excretory organs are thrown, by this their primary effect upon the stomach. Thus, in the case before us, it is plain, that by the strong compression of the neighbouring parts, the *nîsus naturæ*, in the action of vomiting, the phlegm collected in the branches of the Aspera Arteria, was free'd and thrown up ; and in all probability, the glands of the parts affected, the *seats* of this morbid secretion, perfectly cleared of their obstructing viscidities. Therefore, in case of a deposition of matter, phlegm, or extraneous substances, in the Trachea or its branches ; if, by introducing

ducing a finger, or tickling the throat with a feather, we make the patient urge to vomit, we shall greatly assist the efforts of nature to expel the offending matter.

CASE X.

J. S. two years old, was of a remarkable bad habit. A principal part of her diet consisted of old wall, ashes, &c. Unless narrowly watched, she was always in search of things of this kind. Her countenance was pallid, her eyes hollow, and her flesh flaccid. She had more than once been almost exhausted by a violent purging; tho', for a few weeks past, she had been costive. Her parents being uncommonly pressing to have her inoculated, on account of the small-pox being in the neighbourhood, I was prevailed upon to take the care of her. She was inoculated July 7th, having taken two days before the following powder in the evening, and a dose of purging syrup the next morning.

R. *Merc. Alkaliz.* gr. iv.

— *Dulcis.* gr. iſs.

Sal. Martis. gr. iij.

M.

The

The day after inoculation, she took two of these powders; one in the morning, fasting; the other at night, going to bed: and the following morning, a dose of purging fyrup. Early on the morning of the fourth day, I was desired to visit her immediately: upon examination, I found her covered from head to foot with small eruptions, exactly resembling the confluent small-pox; most of them raised above the surface of the skin, and hard to the touch. Her pulse was quick, and her skin hot. As the appearance of this eruption indicated something more than a simple inoffensive rash; as the small-pox was so near, and one of the servants of the house actually sickened in the natural way, three days before; and as the signs of infection on the child's arm were very doubtful; I was at first apprehensive of its being the confluent natural small-pox. But reflecting that the child had not to appearance much previous illness, that the whole eruption appeared in the space of a few hours (making no gradual advance like the small-pox, from the head downwards), and that the child was then free from *violent* symptoms, I began to think that this (at first formidable) appearance was no other than
a rash

a rash, caused by some impurity of the juices, thrown to the surface of the body by means of the mercurial chalybeate powders. Directions were accordingly given to keep the child moderately warm, and to give her plenty of sage tea, and other thin diluting liquors. A Julep was likewise prescribed, containing Tart. Solub. Pulv. e Chelis C. Confect. Alkerm. &c. By these means, the florid colour of the eruptions began to grow dusky in twenty-four hours, and at the end of three days, they entirely disappeared. The eruptive symptoms commenced on the eighth day, and were very moderate. She had an eruption of about thirty pocks. The child's habit appears to be much mended by the regimen and medicines; and she enjoys a much better state of health than she ever had before.

CASE XI.

A Young healthy married couple were inoculated, July 18th, with matter taken from an infected arm eleven days after inoculation. The following day, the husband's arm itched much; he complained

ed of a numbness and frequent shooting pains from the places of insertion up to the shoulder; a considerable hardness, and an inflammatory efflorescence larger than a sixpence, surrounded each puncture. The wife had similar symptoms and appearances, tho' in a lesser degree. I imagined that both these would turn out such irregular cases as Dr. DIMSDALE has described in his 47th, 48th, and 49th pages. But it proved otherwise. On the next day, the inflammation and painful sensations of the man's arm, were greatly abated; and the punctures had a proper appearance for the third day after inoculation. He proceeded very well, sickened on the sixth day, and after pretty severe eruptive symptoms, had about thirty pustules. But the inflammation and shooting pains of the woman's arm, were much increased on the third day; attended with head-ach, thirst, and a slight fever. On the fourth day, the febrile symptoms entirely left her. The inflammation on the arm was much diminished; and in two or three days totally disappeared. I now concluded, from those cases described by Dr. DIMSDALE in the pages above referred to, that the whole affair was over, and that the

the patient was secure from any further infection from the small-pox. However, for her satisfaction, and my own information, I inoculated her a second time, with matter taken from an infected arm twelve days after inoculation. On the third day after the operation, I perceived with some surprise, that the infection had taken place. The punctures advanced properly; and she sickened on the evening of the seventh day. Though the pain of the head and back was severe, the fever was inconsiderable. She had but three large pustules; and the inoculated part dried up at the proper time, leaving a scab at the place of insertion.

CASE XII

S. B. a sucking child, four months old, was inoculated on the 22d day of January, with the clear fluid of an infected arm, taken in the eruptive fever. In forty-eight hours after the operation was performed, the signs of infection were so strong, and so far advanced, that I informed the parents the disease would pass off in a very slight manner, and much sooner than it does with

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the

the generality of patients. On the fifth day, I found that the inflammatory appearances were quite gone from the arm; and two scabs, each of the size of a large pin's head, remained at the places of insertion. On the preceding day, the child had been very restless and feverish; and I made no scruple (upon the testimony of Dr. DIMSDALE, and several cases of a similar kind that I had met with in my own practice), to pronounce the child safe from any future infection of the small-pox. But for the satisfaction of her parents, I inoculated her a second time,—with crude matter taken from an infected arm, six days after inoculation. I neglected to look at her arm for several days. At length the mother desired me to examine it, suspecting that the child was infected; which proved to be the case upon inspection. The puncture advanced properly, and with a pretty extensive inflammation. On the seventh day, the eruptive fever ran pretty high; but was succeeded by an eruption of several pimples only, which never matured. There remained on her arm a scab as large as a silver penny.

CASE XIII.

ES. a healthy woman, forty-one years of age, was inoculated on the 24th of August, with thirty-six others, in a town where the small-pox was at that time rife. She had taken the preparatory powder; and the purging salts, the day preceeding the inoculation. There was a strong suspicion of her having taken the infection in the natural way; and on the day after inoculation she sickened. She was seized with a rigor; violent pains from head to foot; and in a few hours a high fever. I saw her late that evening; and (having none of the extinguishing pill with me) gave her ten grains of the No. 4, which in few hours purged her briskly twice or thrice. By the next morning her fever and pains were somewhat abated. She was kept moving in the open air, and drank several times of cold water towards the evening. Her fever again increased, and I gave her nine grains of the extinguishing pill. This neither vomited nor sweated her; but purged her once or twice the next morning. Her fever and pains now left her, and the pocks appeared.

She had a favorable eruption of about two hundred, passed thro' the succeeding stages without confinement; and remains in perfect health.

C A S E XIV.

A. T. aged nineteen, was seized on the 14th of May with a rigor, succeeded by violent pains in her head, back, and limbs. These symptoms continued four days before I saw her. Upon examination, I found her arms covered with a vast number of eruptions. They appeared likewise upon her neck and face. She still complained of pains in her head, back, and limbs; and of great oppression and sickness at stomach. After giving her ten grains of the extinguishing pill, with a glass of water, I ordered her to move about in the open air; and if the pill vomited her, to encourage it by drinking tepid water. In three hours, as the former pill had taken no effect, I repeated it in the same dose. This operated once by vomit, and six or eight times by stool, before the next morning; when her complaints were greatly relieved. She walked much in the open air this day; and towards the

the evening, took two or three draughts of cold water. She had no complaint after this. Fifteen or twenty pocks only proceeded to maturation, which dried away early; and she is now in perfect health.

I shall take the liberty to subjoin the following case, — not as an encouragement for any to undertake another such patient, but on account of its singularity; as, I suppose, a person of so foul a habit of body, in so weak a state, and with such a complication of complaints, was never before (nor may be, perhaps, in future) inoculated for the small-pox.

CASE XV.

A Woman, thirty-seven years of age, was inoculated on the 8th of August, having taken the preparatory powder, (containing Merc. Dulcis, gr. viij.) and dose of purging salt. On the second evening after inoculation, she took gr. viij. of the powder No. 1. Upon visiting her on the third day, I found that the medicines had operated very roughly with her, that she had purged ever since she took the preparatory dose, that the preceding

preceding night's powder had griped her severely, that she had no appetite to food, and was so very weak that she could scarce stand or lift her hand to her head. I did not much wonder at her present situation, when I was made acquainted with the previous state of her health; which her husband (who applied to have her inoculated, and took the preparatory medicines home with him), either purposely or inadvertently concealed. I found that she had been afflicted with a leprosy upwards of thirty years; that there were at all times scurfy blotches on her arms, from the elbows to the wrists, and upon her forehead, which now resembled a large sort of variculous pocks picked off too soon; that in every spring and autumn there was a violent increase of the leprosy; that at these seasons she was almost covered with inflammatory leprous eruptions; and that she had tried a variety of remedies recommended by the faculty, and a salivation, to no purpose. She added, likewise, that she had been in a weak languid state from the time she suckled twins, of whom she had then been delivered about two years; that her blood was always very thin; and that she was frequently subject to severe shooting pains in her head and
back,

back, with weakness and disorder of her bowels upon the least irregularity of diet, or upon taking cold. As the medicines and regimen she hath hitherto taken and pursued, were highly improper for her constitution; I immediately ordered her very gentle purgative, to carry off the remains of the calomel, and a more generous strengthening diet than she had before used. On the fifth day, the punctures appeared in a proper state; but she still remained very weak, with a loathing of all kind of food. I caused her to be removed to a house near me, that I might do as much as possible to strengthen her against the approaching day of danger. She took this evening (being the fifth from the inoculation), the following powder.

R. *Cort. Peruv. pulv.* ℥j.

Sal. Martis.

Pulv. Rad. Rbai. ā gr. iij.

M.

This was repeated three times on the sixth, and once on the seventh day. The appearance of the eruptive symptoms prevented a longer continuance of it. By the first dose of these powders her appetite was mended; and

and at the time of the appearance of the eruptive fever, her strength and spirits were considerably recruited. On the ninth day, being the third of the eruptive fever, the pains in her back and limbs became very severe. She passed a restless night; and the next day her pains and fever were increased. Three table-spoonfuls of the following mixture was directed to be given her every three hours.

R. *Pulv. Bezoardie.*
Tart. Solub. ā ʒj.
Syr. e Meconio. ʒvj.
Aq. Menthae S. ʒiſs.
 — *Cinnam. Fort.* ʒiſs.
 — *Fontana.* ʒiij.

M.

She passed the night of the tenth day better than the preceeding; she sweated pretty much; and by the morning her violent pains ceased, but left her so weak that she could scarce stand. Several eruptions now appeared on her face and arms: and as the fever seemed to be entirely subdued, and a degree of strength wanting to throw the disease to the surface, she was permitted to take of egg-candle, sack-whey,

whey, mutton-broth, &c.; and in the evening, a little mild ale with a toast. She passed a tolerable night; and on the twelfth day, a score or two of fine large pocks appeared. The following night, her rest was broken by severe shooting pains in her bowels, and side of her head, which made her very restless for the remainder of the night. In the morning, a powder was given her, containing Pulv. Rad. Rhæi gr. xv. This purged her thrice, and her pains gradually went off; together with several hard painful tumors, which had made their appearance in her neck, and behind her ears, soon after the accession of the violent pains. From this time she daily gained strength; and the eruptions (consisting of about three hundred fine large distinct pocks), proceeded kindly to maturation and exarefcence.

F I N I S.



A T

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